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Full Length Article

Power influences the expression of Honesty-Humility: The power-exploitation affordances hypothesis

Ard J. Barends [a,*], Reinout E. de Vries [a,b], Mark van Vugt [a,1]

[a] Vrije Universiteit Amsterdam, Department of Experimental and Applied Psychology, Institute for Brain and Behavior Amsterdam De Boelelaan 1105, 1081 HV Amsterdam, the Netherlands
[b] University of Twente, Department of Educational Science, 7500 AE Enschede, the Netherlands

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ABSTRACT

Across different experiments we show that individual differences in Honesty-Humility predict exploitation in economic games, and that this relation is moderated by situational power. Power was manipulated by comparing games in which allocators either had absolute power (dictator game), intermediate (delta game), or shared power (ultimatum game) over joint outcomes. We developed the power-exploitation affordances hypothesis that predicts that allocators with lower Honesty-Humility act more exploitative when they have absolute power than when their power is intermediate or shared. Additionally, we also tested these predictions for the actual earnings in these games. The results were generally supportive of our main hypotheses. Our findings contribute to understanding situational and personality effects on how individuals behave in positions of power (e.g., leaders).

1. Introduction

Exploitative and selfish behaviors of people in power may be among the most damaging risks that organizations face. Corruption, fraud, and abuse of authority may result in direct costs for organizations and their employees. Additionally, when uncovered, such acts can result in highly publicized scandals which may incur reputational damage for the organization (e.g., Enron, Orange). Although exploitative behaviors can manifest themselves at all organizational levels, they are especially harmful if they involve people in high power positions (such as leaders) because of their disproportionate influence on organizational culture and decision-making (Padilla, Hogan, & Kaiser, 2007).

Scholars have suggested two main causes of exploitation by people in power positions, that is, situational and personality determinants. According to the situational perspective, structural differences in access to power directly increases exploitation of others by people in power positions (Kipnis, 1972; Ludwig & Longenecker, 1993). According to the personality perspective, individual differences in personality, such as variation in the trait Honesty-Humility, may be an important predictor of the willingness to exploit others (Ashton & Lee, 2007; Hilbig & Zettler, 2009). These two causes jointly influence behavior because personality expresses itself in situations and therefore the two may interact to affect behavior (e.g., Funder, 2006). The main hypothesis that we test in this research is that power asymmetry will exacerbate the exploitative tendencies of people in high power positions especially among those who are low on Honesty-Humility.

This core hypothesis is conceptually derived from the recently developed Situation-Trait-Outcome-Activation model (STOA; De Vries, Tybur, Pollet, & Van Vugt, 2016), which systematically maps the situational affordances that allow personality differences to affect behavior. The situational affordances perspective from the STOA model allows us to make specific and unique predictions on the joint impact of the situation (i.e., power asymmetry) and personality (i.e., Honesty-Humility) on exploitative behaviors of individuals with situational power and on the outcomes of their

* Corresponding author at: Department of Experimental and Applied Psychology, Institute for Brain and Behavior Amsterdam, Vrije Universiteit Amsterdam, De Boelelaan 1105, 1081 HV Amsterdam, the Netherlands.
E-mail address: a.j.barends@vu.nl (A.J. Barends).

[1] Note that the studies were not preregistered. Furthermore, we also want to clarify the contributions of the authors to the paper: AB was responsible for study design, data collection, data analysis, and manuscript writing. RdV and MvV were also responsible for study design and manuscript writing.

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behaviors. In the following sections we will first discuss the roles of power asymmetry and personality on decision-making and then develop our power-exploitation affordances hypothesis.

1.1. Power asymmetry leads to exploitation

Power is defined as having asymmetric control over valued resources in a social relationship (Magee & Galinsky, 2008; Van Vugt & Tybur, 2015). Through asymmetric control over valued resources, power asymmetry affords the exploitation of low power individuals by allowing persons in positions of power to allocate more resources to themselves or take resources away from others lower in the hierarchy. Multiple studies have shown that power asymmetry leads to exploitative behavior. For instance, giving individuals power increases the tendency to falsely incriminate someone for financial gain (Swanner & Beike, 2015), to make risky investments with the resources of others (Pitesa & Thau, 2013), and to take personal credit for collective accomplishments (Lammers & Burgmer, 2018).

Various theories explain why power asymmetries give rise to exploitative behaviors. The social distance theory of power (Magee & Smith, 2013) states that power increases feelings of social distance, resulting in a reduced interest in others' thoughts and feelings, less responsiveness to the needs of others, and more disengaging emotions. Similarly, the approach-inhibition theory of power (Keltner, Gruenfeld, & Anderson, 2003) states that power causes individuals to focus and act on their personal goals, and to construe other people as a means to an end. The Bathsheba syndrome (Ludwig & Longenecker, 1993) is aligned with these perspectives as it argues that individuals in a power position are more confident that their exploitative acts will not be found out. Finally, evolutionary theories of power suggest that steep organizational hierarchies—in which there are substantial differences in power between leaders and followers—give rise to more dominant, exploitative forms of leadership (Van Vugt & Ronay, 2014). Overall, these various theories suggest that having power increases both individuals' motivation and opportunity to exploit others for their own benefit.

1.2. Honesty-Humility and exploitation

In terms of personality differences, the Honesty-Humility trait of the HEXACO framework may be the most important trait predictor of exploitative tendencies, and it may in turn determine in what kinds of positions people are most likely to exploit others. The Honesty-Humility factor, which subsumes characteristics such as fairness, modesty, and honesty (Ashton et al., 2004; Lee & Ashton, 2004), is based on the very same lexical approach that has led to the Big Five personality consensus in the early nineties of the previous century (Goldberg, 1982, 1990). The lexical hypothesis states that all the important personality characteristics are encoded in language, and that characteristics that co-occur can be derived from that language in the form of personality traits. The HEXACO framework, and thus the Honesty-Humility trait, is the result of this lexical approach, and studies from various languages and cultures have found that these six factors constitute the maximum set of cross-culturally replicable factors of personality (Ashton et al., 2004; Saucier, 2009; see for a review Ashton, Lee, & De Vries, 2014).

The HEXACO framework is an acronym of the six personality traits that it encapsulates: Honesty-Humility (H), Emotionality (E), eXtraversion (X), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O). The Extraversion, Conscientiousness, and Openness to Experience traits largely overlap with the more widely known Big Five or five factor model (FFM) of personality (Digman, 1990). However, there are some differences between the two personality models. First, the HEXACO model posits the existence of a sixth personality trait in Honesty-Humility which captures content related to honesty and modesty that is not well captured by the FFM. Second, two factors in the HEXACO model have an alternative (rotated) position in personality space. Specifically, anger-related adjectives that tend to load on Neuroticism in the FFM load on the Agreeableness factor in the HEXACO model and sentimentality-related adjectives that tend to load on Agreeableness in the FFM load on the Emotionality factor in the HEXACO model (see Ashton & Lee, 2007; Ashton et al., 2014 for in-depth descriptions of the differences between the two personality models).

The trait Honesty-Humility is associated with a range of different behaviors and outcomes that are conceptually related to exploitative behaviors. For instance, Honesty-Humility is negatively related to counterproductive and delinquent work behaviors (De Vries & Van Gelder, 2015; Lee, Ashton, & De Vries, 2005) and unethical business decisions (Ashton & Lee, 2008; De Vries, Pathak, Van Gelder, & Singh, 2017). Moreover, leaders' self-rated Honesty-Humility has been found to be negatively related to followers' ratings of abusive leadership (Breevaart & De Vries, 2017). Additionally, Honesty-Humility is positively related to factors that theoretically protect individuals from exploitation, such as ethical leadership (De Vries, 2012). Thus, there are good reasons to assume that Honesty-Humility is an important predictor of exploitative behavior.

1.3. The power-exploitation affordances hypothesis

The power-exploitation affordances hypothesis offers a possible explanation for how personality and situational power differences interact in shaping individuals' exploitative behaviors. The Situation-Trait-Outcome-Activation model (STOA; De Vries et al., 2016) posits that evolutionarily-relevant situations have distinct affordances that allow for the expression of particular personality traits and that activating these traits in such situations will have multiple downstream consequences. More precisely, the STOA model argues that these situational affordances contribute to personality variation due to three different processes: situation activation, trait activation, and outcome activation.

First, situation activation means that individuals are more likely to seek out situations that fit their personality. For example, extraverted people are more likely to (want to) attend parties with lots of strangers than introverted people. Second, trait activation means that the trait is more likely to be expressed in situations that contain cues that are diagnostic of the trait. For instance, at a party with strangers, individual differences in extraversion are more likely to be shown—and thus observed by others—than say individual differences in conscientiousness. Third, outcome activation means that different outcomes, positive and/or negative, emerge as a consequence of the expression of high or low levels of an activated personality trait. To continue with our example, extraverted people are more likely to make friends at parties with many strangers and will find such parties more enjoyable.

Relevant to our paper, STOA also makes specific predictions about situational affordances for people who differ dispositionally in Honesty-Humility. Specifically, individuals low in Honesty-Humility are more likely to seek out positions of power (Lee et al., 2013). Moreover, individual differences in Honesty-Humility are most likely activated in situations in which there is a possibility to exploit others (De Vries et al., 2016), and should therefore be more pronounced in situations in which a person has high situational power. In addition, such situations likely affect the outcomes of people low and high in Honesty-Humility differently, with those low on Honesty-Humility more likely to obtain better outcomes in a situation in which they have more power.

High situational power should strengthen the impact of Honesty-Humility on exploitation because people in powerful positions have few behavioral constraints (De Vries, 2018; Galinsky, Magee, Gruenfeld, Whitson, & Liljenquist, 2008). Therefore, powerful persons can shape situations to make them more aligned with their dominant trait (cf., Keltner et al., 2003). Furthermore, individuals in powerful positions may be relatively frequently exposed to situations in which they can exploit others, because they often have to make decisions involving the distribution of scarce resources. Consequently, Honesty-Humility is more strongly activated when a person has high power (i.e., power increases trait activation of Honesty-Humility). Finally, having power gives people with low Honesty-Humility a chance to increase their exploitative behavior without the risk of punishment, retaliation, or ostracism (i.e., power increases outcome activation).

Trait expression in situations is also determined also by situational strength (Cooper & Withey, 2009; Funder, 2006). It has been proposed that in strong situations traits have little influence because behavior is mainly governed by the situation itself. Comparatively, a weak situation may activate a trait and then the individual dispositions matter more because the situation itself provides little input in how to behave. Power is also considered to be variation in situational strength (Cooper & Withey, 2009) and has been demonstrated to influence the expression of personality traits (Galinsky et al., 2008; Guinote, Weick, & Cai, 2012). Specifically, individuals in a position of high power have fewer constraints and are therefore more in a weak situation than individuals with less power who are more in a strong situation. Therefore, we predict that Honesty-Humility will be most often activated in a situation of high power.

An alternative model for understanding interactions between personality and situation is the Traits as Situational Sensitivities model (TASS; Marshall & Brown, 2006). This model makes a somewhat different prediction than the STOA model regarding the interaction between situational power and Honesty-Humility. Specifically, this model argues that the greatest trait expression is observed in situations with intermediate strength rather than in either weak or strong situations. The TASS predicts that in intermediate (neither weak, nor strong) situations there is sufficient activation for those who are at one end of the trait distribution (e.g., low Honesty-Humility) and insufficient activation for those who are at the other end of the distribution (e.g., high Honesty-Humility). Comparatively, the TASS argues that in weak situations (e.g., absolute power situation) there is less activation of the trait than in the intermediate strength situation. Therefore, the TASS predicts that the intermediate situation is best able to distinguish between people who are either high or low on a trait. The STOA and the TASS model both predict that in the strong situation (e.g., shared power) there is least trait activation.[2] Thus, by including situations that vary in situational power, from absolute (weak situation) to intermediate to shared power (strong situation), we are able to contrast predictions from the STOA and the TASS-models.

1.4. Power and exploitation in games

In order to test the power-exploitation affordances hypothesis, we used economic games to model exploitative decisions (e.g., De Cremer & Van Dijk, 2005; Stouten, De Cremer, & van Dijk, 2005).[3] Each game represents a unique situation that appeals to a different set of motives and varies in levels of conflict, but all games have in common that they revolve around choosing to either act in a self-interested way or to forgo self-interest and foster the welfare of others (Thielmann, Böhm, & Hilbig, 2015). This trade-off lies at the heart of most exploitative behaviors. An additional reason to model exploitative behavior with economic games lies in their external validity in predicting moral decisions. For instance, behavior in economic games has been found to predict whether or not people repay their loans (Karlan, 2005), do volunteer work (McClintock & Allison, 1989), donate to charities (Van Lange, Bekkers, Schuyt, & Van Vugt, 2007), and return money that they are not entitled to (Franzen & Pointner, 2013).

An additional advantage of using economic games is that power can also be easily manipulated within these games (Sivanathan, Pillutla, & Murnighan, 2008). The power symmetry or asymmetry between players is one of the crucial elements that differ between games (Gerpott, Balliet, Columbus, Molho, & De Vries, 2018; Kelley et al., 2003). Relevant to our paper, dictator and ultimatum games differ in the level of power of the allocator (Galinsky, Rucker, & Magee, 2015; Suleiman, 1996). In the ultimatum game, the allocator divides resources between him-/herself and a recipient (Forsynthe, Horowitz, Savin, & Sefton, 1994; Güth, Schmittberger, & Schwartze, 1982). The recipient then decides whether to accept or reject the offer. If accepted, the resources will be divided as proposed; if rejected, both get nothing. In the dictator game, the allocator also divides resources but, in this game, the recipient has no say in the proposed division (Forsynthe et al., 1994).

The ultimatum game and the dictator game lie on a continuum of power (Galinsky et al., 2015; Suleiman, 1996). Suleiman suggested that changing the effect of veto power (the delta factor) turns a dictator game in an ultimatum game by changing the percentage of what both the allocator and recipient receive when an offer is rejected. In the dictator game, this value is set at 100% and in the ultimatum game this value is set at 0%. Versions that are mixes of these two games can also be construed, so-called delta games (i.e., when the value is set somewhere between the two extremes). Several studies have utilized this continuum as a manipulation of power (Handgraaf, Van Dijk, Vermunt, Wilke, & De Dreu, 2008; Van Dijk, De Cremer, & Handgraaf, 2004). In this research we include a version of the delta game (in Study 2), thus testing an intermediate level of power (Suleiman, 1996). The inclusion of the delta game as an intermediate form of power has several advantages when compared to only contrasting the dictator and ultimatum game.

First, power is mainly conceptualized and operationalized as a dichotomous variable (i.e., having versus lacking power; Anicich & Hirsh, 2017). However, as Anicich and Hirsh argue, it is more appropriate to consider power as a continuous variable. By comparing allocator decisions in the ultimatum game, delta game, and the dictator game we are able to examine the influence of situational power at shared, intermediate, and absolute power levels. Furthermore, the ultimatum game and dictator game have been considered to differ in situational strength (Zhao & Smillie, 2015). Specifically, the dictator game is a weak situation without any external constraints, whereas the ultimatum game is strong situation where most people act alike. Finally, including the delta game also enables us to compare predictions from the STOA and TASS models. We will refer to the dictator game, delta game, and the ultimatum games as situations of absolute, intermediate, and shared power respectively. These situations also vary in situational strength; the absolute power condition is a weak situation, the intermediate power condition a medium situation, and the shared power condition a strong situation. Comparing decisions in these three games are informative for understanding how various levels of power affect the expression of Honesty-Humility.

[2] We thank the editor for bringing the TASS model to our attention. For the sake of clarity, we did not have a-priori predictions to contrast this prediction to the one from the STOA model. However, our data allowed us to compare these two contrasting predictions.

[3] From an economist's perspective, any transaction higher than zero is considered prosocial because it violates the economic rationale; from a psychologist's perspective, other considerations such as fairness determine whether an act is prosocial or exploitative.

1.5. Prior studies

Three prior studies have investigated whether power moderates the relations between individual dispositions and exploitation modeled in economic games. However, none of these studies operationalized power in a more continuous way. Furthermore, these studies yielded some conflicting findings. A study by Bendahan, Zehnder, Pralong, and Antonakis (2015) investigated the interaction between power and Honesty-Humility and found only evidence for a main effect of power on exploitation. A study by DeCelles, DeRue, Margolis, and Ceranic (2012) investigated the interaction between power and moral identity internalization (a trait conceptually related to both Honesty-Humility and Agreeableness) and found evidence for both a main effect of power on exploitation and an interaction effect. More specifically, individuals low in moral identity who recalled an episode of power became more exploitative, whereas individuals high in moral identity who recalled power became more generous. Finally, a study by Hilbig and Zettler (2009) found an interaction between power and Honesty-Humility such that this trait was negatively related to exploitation in the dictator game with also a (non-significant) negative relation between Honesty-Humility and exploitation for the ultimatum game.

The above studies had different kinds of manipulations of power, making comparisons between them somewhat difficult. Specifically, Bendahan et al. (2015) manipulated power by contrasting various dictator games that differed in the amount of response options and the number of people affected by the dictator's behavior. However, these manipulations only contrasted variations in *absolute* power. In contrast to this study, DeCelles et al. (2012) manipulated power external to economic games by letting participants recall an episode of their life in which they had power and the control group recalled what they had done the previous day. However, this power recall approach has been criticized because it is potentially subject to a demand effect and may reflect the psychological effects of feeling powerful rather than the actual power in a situation (Flynn, Gruenfeld, Molm, & Polzer, 2011; Sturm & Antonakis, 2015).

Finally, Hilbig and Zettler (2009) manipulated power by contrasting the ultimatum game and the dictator game in the same way that we aimed to do in the current studies. However, our study carried various design improvements. First, we planned to check whether these games actually differ in the amount of power that participants experience when playing these games (such measures were missing in the Hilbig and Zettler (2009)-study). Furthermore, unlike their research we added an intermediate power condition to look at the expressions of Honesty-Humility across three different power conditions. Finally, we employed incentivized multi-player games—instead of hypothetical games—with real, tangible monetary outcomes.

1.6. Overview of our studies

Building on the above studies, our goal is to test the power-exploitation affordances hypothesis in terms of trait activation and outcome activation. We test this hypothesis by contrasting three games in which allocators either have absolute power (the dictator game), intermediate power (delta game), or shared power (the ultimatum game) over the division of resources. Based on the power-exploitation affordances hypothesis, we predict an interaction between situational power and the Honesty-Humility trait on exploitative behavior in economic games (i.e., power increases trait activation of Honesty-Humility). We expect that having power results in an activation of individual differences in Honesty-Humility such that those low in Honesty-Humility will take more when they have absolute power. In contrast, we expect individuals high in Honesty-Humility not to be influenced by the power manipulation to the same extent as individuals low in Honesty-Humility. We will also compare these predictions with those derived from the TASS model (Marshall & Brown, 2006). The TASS model argues that in the intermediate power situation the individual differences in Honesty-Humility will be more strongly related to exploitation than in a situation where someone has absolute power. Furthermore, both the TASS and the STOA model predict that in the shared power condition (i.e., strong situation) the relation between Honesty-Humility and exploitation is the weakest compared to the other power conditions. Finally, we expect that individuals low in Honesty-Humility will benefit more from their power than individuals high in Honesty-Humility (i.e., power increases outcome activation of Honesty-Humility).

We investigate our predictions in two experiments (and a pilot study). Study 1 investigates the contrast between the ultimatum and dictator games to demonstrate that Honesty-Humility is associated with exploitative behaviors in the absolute power condition only (consistent with the STOA model). Subsequently, a pilot study investigates whether allocators have different perceptions of their power in the ultimatum game, dictator game, and the intermediate delta game. Finally, in Study 2 we use these three games in an incentivized multi-player interaction experiment to investigate interactions between Honesty-Humility and situational power. In Study 2, we will test the predictions from the TASS and the STOA model.

2. Study 1

This first study is a replication of Hilbig and Zettler (2009) and tested the power-exploitation affordances hypothesis by collecting data on individual differences in Honesty-Humility and investigating their expression in two games that differed in the balance of power: the ultimatum game and dictator game. We expected to replicate Hilbig and Zettler that Honesty-Humility would interact with power. Apart from this main hypothesis, we also investigated trait activation of Honesty-Humility across a battery of 9 additional economic games using a between-subjects primed power task (Galinsky, Gruenfeld, & Magee, 2003). Because of the inconsistent findings, we discontinued this line of research (see supplementary files for the full materials and results) and focused on the ultimatum game and the dictator game (collapsed across priming conditions) instead because these two games figure prominently in models of exploitation and because they differ inherently in the amount of allocator power (Galinsky et al., 2015; Suleiman, 1996).

2.1. Methods

2.1.1. Participants

To obtain an estimate of the sample size needed, a power analysis was conducted using GPower 3.1.9.2 (Faul, Erdfelder, Lang, & Buchner, 2007). Our expected effect size was based on the findings of Hilbig and Zettler (2009). Specifically, we took the obtained correlation between Honesty-Humility and the difference score between the ultimatum game and dictator game as input (i.e., $r = 0.20$; $\alpha = 0.05$; $\beta = 0.80$; one-tailed test). To test our main hypothesis we minimally required a sample of 150 participants. Note that we based the power calculation upon the correlation effect size because we are not aware of any software that enables us to calculate a power analysis for a repeated measures ANCOVA.[4]

[4] Note that G*Power only allows for the calculation of a repeated measures ANOVA (not a repeated measures ANCOVA). However, if we conducted an a-priori power analysis using a repeated measures ANOVA with two groups (instead of a covariate), two within subject measurements (levels of power), and the expected effect size of $\eta_p^2 = 0.04$, a sample size of 194 participants was required to detect an interaction effect with $\alpha = 0.05$ and $\beta = 0.80$.

Oversampling let to a dataset of 210 participants. Data of one participant was removed because of a noncompliant response pattern (see Materials for the procedure used to detect noncompliant patterns).[5] The final sample of 209 participants (M_{age} = 24.54 years, SD_{age} = 11.42 years; 151 women) consisted mostly of students participating for course credits (67.5%) supplemented with a convenience sample, who did not receive payment for participation (32.5%). The convenience sample was recruited by four psychology students who helped with the project as part of their undergraduate bachelor thesis. These students approached people in their own personal network (e.g., friends, family) to participate in the study. A sensitivity analysis using G*Power 3.1.9.2 (Faul et al., 2007) demonstrated that we would be able to detect an effect of r = 0.17 (at α = 0.05 and β = 0.80, one-tailed test) with this sample size.

2.1.2. Materials

2.1.2.1. HEXACO-100. The Dutch HEXACO-100 (De Vries, Ashton, & Lee, 2009) consists of sixteen items for each of the six personality dimensions plus four items to measure the interstitial Altruism facet. Respondents provided self-ratings on a five-point Likert-scale (1 = *strongly disagree* and 5 = *strongly agree*). To check for data quality, noncompliant response patterns were identified with the procedure described in Lee and Ashton (2018; see Barends & De Vries, 2019 for a demonstration of the effectiveness of the procedure in removing noncompliant responses). All scales had α reliabilities above 0.80.

2.1.2.2. Dictator game (allocator role). The allocator divided an initial endowment of €100.- between oneself and a hypothetical recipient. The allocator was told that the hypothetical recipient had no influence on the outcome whatsoever. For ease of interpretation the amount kept by the dictator was taken as an indication of exploitative behavior. Note, however, that participants were asked how much money they wanted to offer to the recipient instead of how much they wanted to keep.

2.1.2.3. Ultimatum game (allocator role). The ultimatum game was similar to the dictator game; the allocator divided an initial endowment of €100.- between oneself and a hypothetical recipient. The difference between the games was that the hypothetical recipient could either accept or reject the offer as proposed by the allocator. If the offer was accepted, the money was divided as proposed; if the offer was rejected, both the allocator and the recipient got nothing. Again, the amount kept was taken as the outcome measure.

2.1.3. Procedure

Participants first completed the Dutch 100-item HEXACO personality inventory (De Vries et al., 2009). Subsequently, participants played eleven economic games, the dictator game (allocator role), the ultimatum game (allocator and recipient roles), the trust game (trustor and trustee roles), chicken, tragedy of the commons, public goods game (two versions), and the iterated prisoner's dilemma (two versions).[6] The eleven games were divided into two blocks to ensure that two roles or versions of the same game would not follow each other. The order of the two blocks was randomized as was the order of games within blocks. The games were all hypothetical, meaning that the other player(s) and the financial consequences had to be imagined. The economic games were described in as neutral terms as possible (e.g., as a task instead of a game, following Zhao, Ferguson, & Smillie, 2017).[7]

2.2. Results

Note that all results are available via the Open Science Framework (http://alturl.com/7tskd).

We first determined whether Honesty-Humility was a significant predictor of behavior in the two economic games. Table 1 shows that only exploitation in the dictator game was significantly related to Honesty-Humility (r = −0.27, p < .001), whereas exploitation in the ultimatum game was not significantly related to Honesty-Humility (r = −0.13, p = .063).

To investigate the power-exploitation affordances hypothesis, a mixed ANCOVA was conducted with power (i.e., the ultimatum game and dictator game) as repeated measures and the standardized Honesty-Humility score as a covariate. Note that this analysis keeps the standardized Honesty-Humility score as a continuous variable.[8]

First, a significant main effect of power revealed that people were more exploitative in the dictator game (M = 54.89; SD = 14.57, 95% CI [52.91, 56.87]) than in the ultimatum game (M = 51.65; SD = 9.97, 95% CI [50.30, 53.00]), $F(1, 207) = 10.08$, p = .002, η_p^2 = 0.05. People with power offered about 6% fewer resources to others than people who had shared power. Such differences may be small for a single interaction, however, across a longer time span (i.e., repeated interactions) such differences may add up. Furthermore, a main effect of standardized Honesty-Humility was obtained, $F(1, 207) = 15.35$, b = −2.62, 95% CI [−3.94, −1.30], p < .001, η_p^2 = 0.07. Finally, the predicted interaction between standardized Honesty-Humility and power was obtained, $F(1, 207) = 6.73$, p = .010, η_p^2 = 0.03.[9]

Fig. 1 displays the simple slopes analysis of the interaction effect of power and standardized Honesty-Humility. As predicted, standardized Honesty-Humility significantly predicted exploitation in the dictator game (b = −3.95, 95% CI [−5.87, −2.03], p < .001), specifically, people low in Honesty-Humility acted more exploitative in the dictator game than those high in Honesty-Humility. However, standardized Honesty-Humility did not signif-

[5] Note that this was a post-hoc exclusion conducted after the data of Study 1 had already been analyzed. However, we have reported the results with this exclusion in order to keep the exclusions comparable with Study 2 where these exclusions were conducted before analyzing the data. The results of both Studies 1 and 2 were comparable with or without these exclusions.

[6] Detailed methods and results for these additional economic games can be found in the supplemental materials. Note that we did not investigate how Honesty-Humility influenced recipient reactions in the ultimatum game because such reactions reflect reactive cooperation and are related to Agreeableness and not to Honesty-Humility (Hilbig, Zettler, Leist, & Heydasch, 2013; Thielmann, Hilbig, & Niedtfeld, 2014).

[7] After all economic games were completed, several data-quality check items were administered. These included self-reported seriousness and two questions enquiring about how well the participants could imagine the interactions. As a robustness check, we also analyzed our data without 10 participants who scored two standard deviations or lower than the mean score of the data-quality check items because these quality checks were significantly correlated to exploitation in the ultimatum game. However, these data-quality check questions do not have an absolute cutoff criterion and we therefore report the findings from the full dataset. Excluding these 10 participants did not change our results. Additionally, a comprehension check for the Prisoner's Dilemma was included at the end of the experiment but we did not use the answers as an exclusion criterion because they did not relate to the economic games of focal interest (see the supplementary files for further details).

[8] Note that a repeated measures ANCOVA with the standardized Honesty-Humility score results in exactly the same findings as the procedure described in a regression framework for moderation with repeated measures data (Judd, Kenny, & McClelland, 2001). We have used the approach by Judd et al. to estimate the b-values reported in the text. Furthermore, we prefer to report the standardized Honesty-Humility score to the centered Honesty-Humility score because this allows for a more meaningful interpretation of the b-values.

[9] To check the robustness of these results (and those of Study 2) we also analyzed the data with the inclusion of demographic variables and the other five HEXACO traits in the model. The focal results of Study 1 and Study 2 were virtually unchanged by the inclusions of the these additional variables to the model (see the supplementary files for details). The main difference was that in Study 2 the contrast between exploitation in the delta game and in the ultimatum game was no longer significant.

Table 1
Correlations between the Variables included in Study 1 and the Choices in the Economic games.

Variable		α	*M*	*SD*	1	2	3	4	5	6	7	8	9
1.	Gender	–	0.28	0.45	–								
2.	Age	–	24.53	11.42	0.17*	–							
3.	H	0.81	3.54	0.51	−0.30**	0.09	–						
4.	E	0.85	3.25	0.58	−0.43**	−0.18**	0.18**	–					
5.	X	0.84	3.54	0.51	−0.03	−0.02	0.02	−0.17*	–				
6.	A	0.86	3.03	0.58	0.05	−0.04	0.25**	−0.13	0.22**	–			
7.	C	0.84	3.47	0.54	−0.00	0.14*	0.19**	0.06	−0.04	−0.01	–		
8.	O	0.83	3.21	0.60	0.07	0.04	0.07	−0.10	0.08	0.03	0.02	–	
9.	Percentage of money kept in the dictator game	–	54.89	14.57	0.09	0.10	−0.27**	−0.02	0.07	−0.06	0.05	−0.03	
10.	Percentage of money kept in the ultimatum game	–	51.65	9.97	−0.11	−0.03	−0.13	0.11	0.01	−0.13	−0.10	−0.04	0.30**

Note. * = $p < .05$, ** $p < .01$, for gender F = 0 and M = 1. Higher values in the economic games reflect more exploitative behavior.

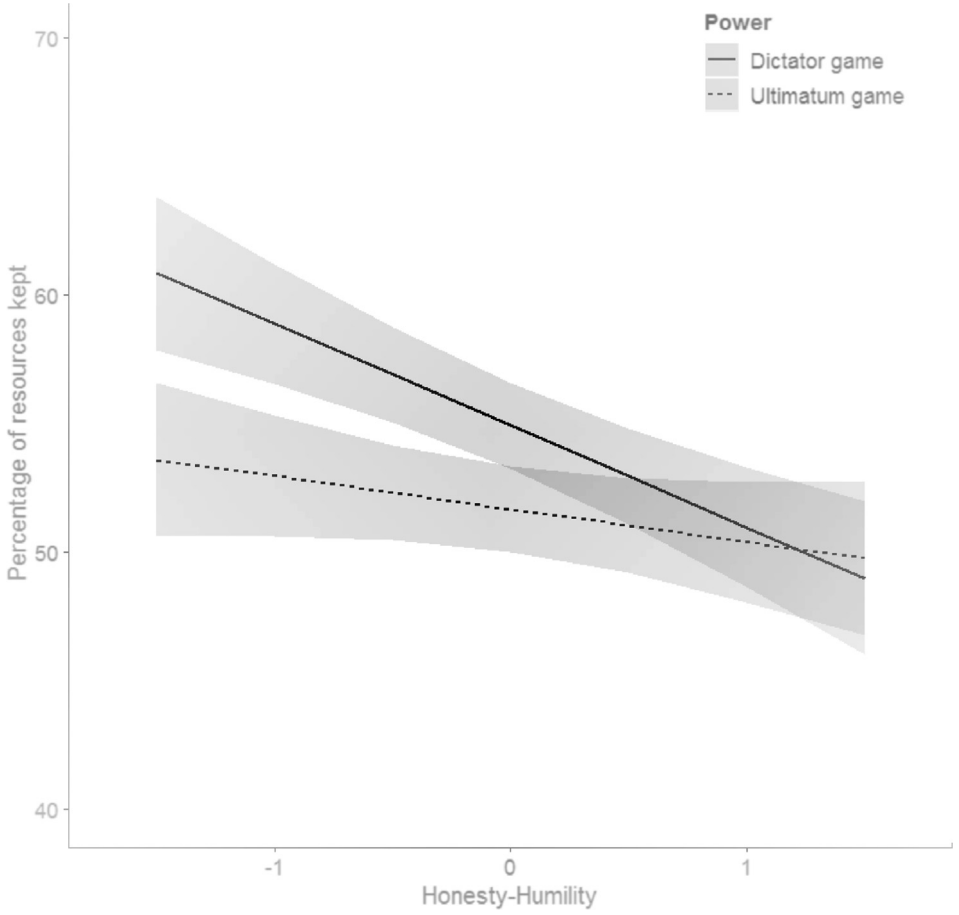

Fig. 1. Simple slopes analysis for interaction between Honesty-Humility (with values 1 SD above and below the mean; and the 95% confidence interval) and power. The y-axis limits are set at one standard deviation above and below the mean of amount kept in the dictator game.

icantly predict exploitation in the ultimatum game, ($b = -1.28$, 95% CI [−2.64, 0.07], $p = .063$).

2.3. Discussion

In Study 1 we investigated the extent to which exploitative behaviors of allocators was affected by their Honesty-Humility in the ultimatum game and the dictator game. Honesty-Humility was significantly related to exploitation only in the dictator game and not in the ultimatum game. These findings replicate Hilbig and Zettler (2009) and suggest that the level of allocator power affects the expression of Honesty-Humility. However, the two games used in this study reflect two extremes of the power continuum (Suleiman, 1996). Therefore, we wanted to follow-up on this research by investigating the impact of intermediate levels of allocator power on the effect of Honesty-Humility on exploitative behavior. Furthermore, although the differences between these games have been interpreted in terms of power asymmetry it has not yet been adequately investigated whether people actually perceive these power differences and feel powerful in these games. Specifically, a prior study only evaluated the ultimatum and dictator games with an ad-hoc scale with unknown psychometric properties (Sivanathan et al., 2008). Moreover, we also wanted to investigate whether the delta game indeed resulted in an intermediate level of perceived and felt power and would also result in an 'intermediate' interaction with Honesty-Humility (predicted by the STOA model; De Vries et al., 2016) or a stronger interaction effect than the high power situation (predicted by the TASS model;

Marshall & Brown, 2006). Finally, we also wanted to test the outcome activation prediction of the power-exploitation affordances hypothesis by determining whether individuals low in Honesty-Humility benefited more financially from higher levels of power than individuals high in Honesty-Humility.

3. Pilot study

Our aim of the pilot study was to manipulate power using economic games by contrasting the dictator game, ultimatum game, and the delta game. This pilot study was conducted to investigate whether it was appropriate to use economic games as a manipulation of power by assessing the perceptions of these games using the power subscale of the situational interdependence scale (SIS; Gerpott et al., 2018). We conducted an a-priori power analysis based on the main effect of power from Study 1 to determine our sample size (required $\eta_p^2 = 0.04$; $\alpha = 0.05$; $\beta = 0.80$; correlation among repeated measures, $r = 0.25$).[10] Note that no prior study had compared the perceptions of power in these games with the SIS, therefore, we chose the results from Study 1 because we expected that behavior in these games would reasonably be related to perceptions of power. This power analysis indicated that we required a sample of 60 respondents to achieve this effect. Therefore, we recruited a sample of 60 first year psychology students ($M_{age} = 19.68$ years; $SD_{age} = 2.23$; 52 women) who participated in return for course credit.

The participants evaluated each game on the perceived power asymmetry between the allocator and recipient with the power subscale of the SIS (Gerpott et al., 2018). Furthermore, the participants indicated the level of felt power in the allocator role (Rucker, Dubois, & Galinsky, 2011). The results of this pilot confirmed that these economic games (i.e., dictator game, delta game, and ultimatum game) are appropriate manipulations of power because they resulted in the expected significant differences in perceived ($F(2, 118) = 70.25$; $p < .001$, $\eta_p^2 = 0.54$) and felt power ($F(2, 118) = 68.11$; $p < .001$, $\eta_p^2 = 0.54$). Briefly, the planned comparisons revealed that all these games significantly differed in terms of perceived and felt power. Specifically, the dictator game had the highest perceived ($M = 4.72$; $SD = 0.61$, 95% CI [4.56, 4.87]) and felt power ($M = 6.20$; $SD = 1.22$, 95% CI [5.89, 6.52]), the delta game was intermediate in perceived ($M = 3.46$; $SD = 0.95$, 95% CI [3.22, 3.71]) and felt power ($M = 4.35$; $SD = 1.34$, 95% CI [4.00, 4.70]), and the ultimatum game was lowest in perceived ($M = 3.01$; $SD = 1.02$, 95% CI [2.74, 3.27]) and felt power ($M = 3.93$; $SD = 1.21$, 95% CI [3.62, 4.25]; See the supplementary materials for further details). Overall, the results of the pilot indicated that the three games can be used as manipulations of allocator power.

4. Study 2

In Study 2, we tested the interaction between Honesty-Humility and power using incentivized multi-player behavioral economic games. The first goal of this experiment was to replicate the main finding of Study 1 that individual differences in Honesty-Humility were only related to exploitative behavior in absolute power situations but not in shared power situations. However, we now also added the delta game as an intermediate power situation to find out whether this yielded an 'intermediate' interaction effect, as predicted by the STOA model (De Vries et al., 2016), or an even stronger interaction effect than the high power situation, as predicted by the TASS model (Marshall & Brown, 2006). We based our design upon the results of the pilot study that demonstrated that it was appropriate to use the ultimatum game, delta game, and dictator as manipulations of power.

To make the power manipulation consequential we further improved upon the design of Study 1 in several ways. First, we incentivized the outcomes of the games in order to reduce any potential response biases (e.g., socially desirable responding), making the exploitation of other persons more attractive than in games with hypothetical outcomes. Furthermore, the incentivized nature of this study allowed us to also investigate whether individuals low in Honesty-Humility actually benefit from having power by earning more resources than those who are higher in Honesty-Humility. Another improvement was to include multiple assessments of every game so that we were able to determine the alpha reliability of each game.

4.1. Methods

4.1.1. Participants and procedure

Study 2 was conducted in two phases using Amazon Mechanical Turk (MTurk). In the first phase, 450 American MTurk workers were recruited (222 women; $M_{age} = 34.92$ years; $SD_{age} = 10.99$) who completed the English HEXACO-100 (Lee & Ashton, 2018) and indicated their availability for the online interaction experiment. All workers who completed the first phase of the experiment were paid $0.50. The responses were screened for noncompliant responses (See the Materials Section). Those who passed the screening were invited to participate in the interaction experiment that started one week after the first phase. For this interaction phase we a-priori determined to recruit 160 participants based on the results of a power analysis (we used the same power calculation as reported for Study 1, $r = 0.20$, $\alpha = 0.05$; $\beta = 0.80$, one-sided test, required $n = 150$ plus some oversampling).[11] During the second phase, 160 MTurk workers completed the interaction experiment. The data of two participants were discarded based on the criteria for noncompliant response patterns (Barends & De Vries, 2019; Lee & Ashton, 2018). The final sample consisted of 158 individuals (80 women; $M_{age} = 36.70$ years; $SD_{age} = 11.46$). Participants received a flat fee of $1.- for the interaction experiment and could earn a bonus payment up to $3.- based on their decisions in the experiment.

Starting from one week after the personality inventory data was collected, eligible workers were informed when a timeslot for the study was published on the MTurk website. The interaction proceeded using the Software Platform for Human Interaction Experiments (SoPHIE; Hendriks, 2012). SoPHIE is an online software platform for designing and conducting real-time interaction experiments, and several studies have successfully used SoPHIE for real-time economic game experiments (e.g., Hauser, Hendriks, Rand, & Nowak, 2016; Wu, Balliet, & Van Lange, 2016). Earlier research demonstrated that online interaction experiments studies resulted in comparable findings as those obtained in the lab (Arechar, Gächter, & Molleman, 2017) and that the data quality of MTurk samples is similar to high-quality commercial online samples (Thomas & Clifford, 2017).

The participants completed the different games in groups of eight. The order of the games was altered between sessions. In sessions containing fewer than eight participants, the first author would take over the remaining slots. Similarly, when participants

[10] Note that we used the used the standard settings of G*Power (options: effect size specification as in GPower 3.0) instead of the option "as in SPSS". If we had used the "as in SPSS" setting an a-priori sample size of 119 participants was required to detect this effect size. Therefore, our pilot sample may have been somewhat underpowered.

[11] As already noted in footnote 3, G*Power only allows for the calculation of a repeated measures ANOVA (not a repeated measures ANCOVA). However, if we conducted an a-priori power analysis using a repeated measures ANOVA with two groups (instead of a covariate), three within subject measurements (levels of power), and the expected effect size of $\eta_p^2 = 0.04$, a sample size of 120 participants was required to detect an interaction effect with $\alpha = 0.05$ and $\beta = 0.80$.

Table 2
Correlations between the HEXACO Traits, the Offers and Earnings in Each of the Economic Games in Study 2.

Variable		*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1.	Gender	.49	.50	–											
2.	Age	36.70	11.46	−.12	–										
3.	H	3.59	.70	−.19*	.15	*.87*									
4.	E	3.14	.70	−.46**	−.05	−.08	*.87*								
5.	X	3.13	.81	−.01	.03	.03	−.17*	*.93*							
6.	A	3.16	.74	.02	.12	.39**	−.20*	.34**	*.92*						
7.	C	3.84	.60	−.16*	.04	.20*	−.12	.37**	.15	*.89*					
8.	O	3.59	.63	−.08	−.02	−.01	.01	.31**	.22*	.17*	*.85*				
9.	Percentage of money kept/earned in the dictator game	66.43	19.03	.23*	−.11	−.25**	−.09	.16*	.01	.03	−.07	*.87*			
10.	Percentage of money kept in the delta game	57.76	12.15	.01	−.10	−.06	−.00	.14	.02	.07	−.10	.39**	*.87*		
11.	Percentage of money kept in the ultimatum game	56.59	11.53	.09	−.13	−.03	−.03	.12	.02	.02	−.17*	.29**	.81**	*.90*	
12.	Percentage of money earned as the allocator in the delta game	53.28	6.37	−.10	−.03	−.05	−.04	.00	.00	.07	−.08	.26**	.52**	.26**	–
13.	Percentage of money earned as the allocator in the ultimatum game	50.73	16.62	−.07	.06	−.02	−.10	−.07	−.07	.05	−.03	−.08	−.40**	−.52**	.30*

Note. For gender F = 0 and M = 1, α are visible on the diagonal, $^{*}p < .05$, $^{**}p < .01$.

dropped out during the experiment the vacant role was also taken over by the first author. Note that the choices made by the first author only affected the recipient decisions of the actual participants because only after all allocator decisions were made participants were confronted with the offers of the other participants. Empty roles were taken over so that the experiment could be completed, and so that all participants could be paid based on their decisions.[12] Dropouts were only observed before the actual allocation decisions took place, so no partial data was collected.

4.1.2. Materials

4.1.2.1. HEXACO-100. The English version of the HEXACO-100 (Lee & Ashton, 2018) used the same items as the Dutch version used for Study 1. However, for this study the Altruism items were not included, and to check for noncompliant responses four attentional check items from the Personality Research Form were interspersed in the HEXACO-100 (Fekken, Holden, Jackson, & Guthrie, 1987). Based on these attention checks 48 participants from phase 1 (10.67% of the sample) were not invited for phase 2. These 48 participants had unusable data indicated by their low α reliabilities (all below 0.30) (see Barends & De Vries, 2019 for an in-depth demonstration that removing such noncompliant respondents removes noise from the dataset). The sample that completed the interaction experiment had scale α reliabilities above 0.84 on all HEXACO traits.

4.1.2.2. Interaction experiment. At the beginning of the experiment, all three games were explained using examples to clarify the differences between the three games. The structure of the dictator and ultimatum game was the same as in Study 1 and again they were described as tasks instead of games. The delta game is a modified version of the ultimatum game (Suleiman, 1996), in which if a recipient rejects the offer, the recipient receives half of what was offered to him/her, and the allocator receives half of what he/she wanted to keep. Participants first made all allocator decisions and then made all recipient decisions. At the start of the experiment, participants were informed that their bonus would be one randomly selected trial of their allocator decisions and one randomly selected trial of their recipient decisions.

[12] If roles were taken over, the first author would always offer an equal split. In the recipient role of the delta and ultimatum game only offers equal to or greater than an equal split were accepted. Participants were not informed that empty roles were taken over by the first experimenter.

The interaction experiment started with the allocator phase, in which all participants made their allocator decisions. The players were divided into a group of four A players and a group of four B players; this role was not communicated to the participants and was only used to match players during the interaction. Each game was played four times with a new recipient for each round (always matching A players in the allocator roles to B players in the recipient roles, and at the same time matching B players in the allocator roles to A players in the recipient roles). Per round the amount of resources to be divided differed, and were presented in a fixed order (i.e., 105, 60, 15, or 150 points). Each point was worth $0.01. The order of the three economic games was changed between sessions, yielding six different orders. For the analyses, all offers were computed in percentages and the mean percentage was taken as the outcome variable for each type of game (i.e., the operationalisations of power). As in Study 1, the amount the allocator did not choose to offer to the recipient was taken as a measure of exploitative behavior. Note that the offers were analyzed without taking into account the rejection and acceptation decisions by the recipients. Only when analyzing the actual earnings were the rejections and acceptations taken into account. To be clear, in the dictator game the offers and earnings did not differ because the recipient could not reject the offer.

After all participants made the allocator decisions, they progressed to the recipient phase of the experiment, in which they made the recipient decisions. In this phase, each participant was presented the offer of a matched player. In the ultimatum game and the delta game the participants chose whether to accept or reject the offer. When making these recipient decisions the participants were always informed how much they and the allocator would earn if they accepted the offer and how much each of them would earn if they rejected the offer. Only after the participant accepted or rejected an offer could they progress to the next offer. In the dictator game participants learned how much they received from the allocators. All recipient decisions were made in the same order as in the allocator phase.

4.2. Results

4.2.1. Generalizability of the sample

It was important to check whether our sample in the interaction experiment (phase 2) was generalizable to the full sample who were invited but did not end up participating. Potentially, people with certain personality profiles (e.g., people lower in Honesty-Humility) may have self-selected into the interaction experiment.

Therefore, we conducted a series of t-tests to check whether any of the six HEXACO traits differed between these two groups. We did not find any significant differences between the two groups (See Table S6) and therefore conclude that our sample of interaction participants is representative of the full sample.

4.2.2. Offers

To determine whether it was acceptable to aggregate the different trials of each game, the α reliabilities were determined for the four trials per game. The α reliabilities were 0.90 for the ultimatum game, 0.87 for the delta game, and 0.87 for the dictator game (see Table 2), replicating earlier studies reporting similar values for choices in the dictator game (Baumert, Schlösser, & Schmitt, 2014; Brocklebank, Lewis, & Bates, 2011). Our findings suggest that the α reliabilities for four dictator game allocator trials are similar to the reliabilities of the allocator decisions in four trials of the ultimatum game and of four trials in the delta game. For each type of game (i.e., for each level of power), we calculated the mean percentage of kept resources.

Zero order correlations were calculated between the demographics, the HEXACO traits, and the behavior in the different games. As shown in Table 2, Honesty-Humility was related to exploitation only in the dictator game ($r = -0.25$, $p = .001$). This finding is consistent with the results from Study 1. Honesty-Humility was not significantly correlated to exploitation in the delta game ($r = -0.06$, $p = .476$), nor was it in the ultimatum game ($r = -0.03$, $p = .748$).

In order to exclude the possibility that the order of games influenced any of the allocation decisions, we analyzed the contributions in a mixed ANOVA with power (i.e., the offers for each of the three economic games) as the within factor (three levels) and the order of games as the between subject factors (six different orders).

The results do not suggest that the order of the games influenced the allocations because no differences were obtained for the order, $F(5, 152) = 0.31$, $p = .904$, $\eta_p^2 = 0.01$; nor was an interaction effect obtained between power and the order, $F(6.19, 188.11) = 1.18$, $p = .317$, $\eta_p^2 = 0.04$ (Greenhouse-Geisser corrected).[13] The order of the games was therefore omitted from all subsequent analyses.[14]

To test the power-exploitation hypothesis, a repeated measures ANCOVA with power as the within factor and the standardized Honesty-Humility score as a (continuous) covariate was conducted. First, a main effect was obtained, replicating the outcomes of the pilot study (see Supplemental materials) that the amount of offered resources differed between the three games, $F(1.25, 194.94) = 38.15$, $p < .001$, $\eta_p^2 = 0.20$ (Greenhouse-Geisser corrected). The planned comparisons revealed that the amount kept in the dictator game was higher ($M = 66.43\%$, $SD = 19.03$, 95% CI [63.46, 69.40]) than the amount kept in the delta game ($M = 57.76\%$, $SD = 12.15$, 95% CI [55.87, 59.65]; $F(1, 156) = 37.91$; $p < .001$, $\eta_p^2 = 0.20$). Similarly, the amount kept in the delta game was significantly higher than in the ultimatum game ($M = 56.59\%$, $SD = 11.53$, 95% CI [54.79, 58.39]; $F(1, 156) = 3.95$; $p = .049$, $\eta_p^2 = 0.03$). Finally, the amount kept in the dictator game was also significantly higher than the amount kept in the ultimatum game, $F(1, 156) = 43.75$; $p < .001$, $\eta_p^2 = 0.22$.

Furthermore, a main effect of standardized Honesty-Humility was obtained $F(1, 156) = 4.54$, $p = .035$, $\eta_p^2 = 0.03$. To interpret this main effect all allocations across the games were aggregated and included in a regression analysis with the standardized Honesty-Humility trait, this regression indicated that those higher in the trait were less exploitative across the games, $b = -1.92$, 95% CI [−3.71, −0.14], $p = .035$.

As expected, an interaction between power and Honesty-Humility was observed, $F(1.25, 194.94) = 8.08$, $p = .003$, $\eta_p^2 = 0.05$ (Greenhouse-Geisser corrected). The planned contrasts revealed that the relation between Honesty-Humility and exploitation in the dictator game was significantly different from the relation between Honesty-Humility and exploitation in the delta game, $F(1, 156) = 8.37$, $p = .004$, $\eta_p^2 = 0.05$. The relations between Honesty-Humility and exploitation in the delta game and between Honesty-Humility and exploitation in the ultimatum game did not differ significantly, $F(1, 156) = 0.45$, $p = .503$, $\eta_p^2 = 0.00$. Finally, the relations between Honesty-Humility and exploitation in the dictator game and ultimatum game were also significantly different, $F(1, 156) = 9.02$, $p = .003$, $\eta_p^2 = 0.06$. Fig. 2 visualizes the interaction between power and Honesty-Humility. As can be observed, standardized Honesty-Humility predicted exploitation in the dictator game ($b = -4.78$, 95% CI [−7.70, −1.87], $p = .001$) indicating that those low in Honesty-Humility were more exploitative than those high in Honesty-Humility. Comparatively, exploitation in the delta game was not significantly related to Honesty-Humility ($b = -0.70$, 95% CI [−2.61, 1.22], $p = .476$) and neither was it in the ultimatum game ($b = -0.30$, 95% CI [−2.12, 1.53], $p = .748$).

4.2.3. Earnings

According to the outcome activation hypothesis, allocators low on Honesty-Humility should obtain better outcomes for themselves in positions of power than allocators high on Honesty-Humility. To test this prediction, we analyzed the data as if all trials would have been incentivized.[15] However, we first adjusted the earnings for the trials in which empty roles were filled by the first author because, as noted in the method section, offers lower than the equal split were always rejected. In total 29 participants rejected at least one offer in the ultimatum game and 39 participants rejected at least one offer in the delta game, however, the participants in this study had a different threshold for rejecting offers: The mean value of the offers that were rejected in the ultimatum was 18.71% ($SD = 16.93$, 95% CI [12.55, 24.87]) and in the delta game it was 16.50% ($SD = 13.88$, 95% CI [12.14, 20.86]). These two values were significantly lower than 50%: In the ultimatum game the mean difference of 31.29% was significantly lower than 50%, $t(28) = -9.95$, $p < .001$, $d = -1.85$; In the delta game the mean difference of 33.50% was also significantly lower than 50%, $t(38) = -15.07$, $p < .001$, $d = -2.41$.[16] We thus adjusted the rejections of taken over roles by retroactively only rejecting the offers equal to or lower than the respective mean rejection value per trial. To calculate the earnings we used the same approach as for the offers and report the amount earned in percentages.

Table 2 shows that only Honesty-Humility was significantly related to the earnings in the dictator game ($r = -0.25$, $p = .001$),

[13] Multi-trial games that do not incentivize all trials are often analyzed in this way (e.g., Blanco, Engelmann, & Normann, 2011; Gillet, Cartwright, & Van Vugt, 2011). Note that when we only analyzed the data of the allocator trial that was actually paid then we do not find the proposed interaction effect. The reason is that this changes the design from a within subjects to a between subjects design, thereby losing statistical power.

[14] If include the order of the games as an additional robustness check in the model with all six HEXACO traits, gender, and age in the repeated measures ANCOVA then the relation between Honesty-Humility in the dictator game and in the delta game are no longer significantly different. The contrast between the dictator game and the ultimatum game still remains significant.

[15] All within subject results in Study 2 are reported using Greenhouse Geisser corrections because the assumption of sphericity was violated for the assessment of power. Specifically, in the analysis of the offers, the Mauchly's test was significant: $\chi^2(2) = 144.57$, $p < .001$. Similarly, in the analysis of the earnings, the Mauchly's test was also significant: $\chi^2(2) = 88.19$, $p < .001$.

[16] We tested whether the number of rejections was related to power or to any of the HEXACO traits. The number of rejections did not differ between the two games (based on all data), $t(157) = -1.30$, $p = .195$. Additionally, none of the personality traits were significantly correlated to the number of rejections (all r's < −0.13)

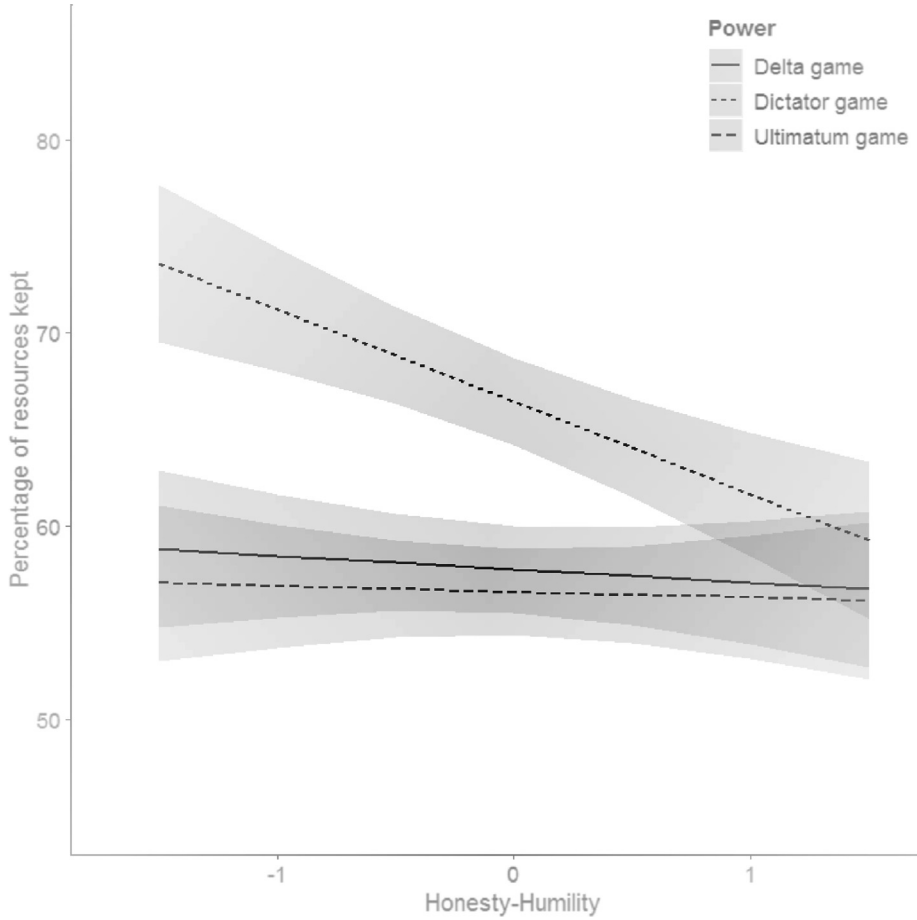

Fig. 2. Simple slopes analysis for interaction between Honesty-Humility (with values one standard deviation above and below the mean; and the 95% confidence interval) and power for the amount kept in Study 2 The y-axis limits are set at one standard deviation above the mean of the dictator game and at one standard deviation below the mean of the ultimatum game.

which was already reported above as there are no differences between the offers and the earnings. In the other two games the earnings were not significantly correlated to Honesty-Humility (in the delta game, $r = 0.05$, $p = .566$; in the ultimatum game, $r = 0.06$, $p = .474$).

In order to investigate the power-affordances hypothesis for the outcomes we again conducted a repeated measures ANCOVA with power as the within subject factor and the standardized Honesty-Humility score as a (continuous) covariate.

The results revealed a main effect of power, $F(1.40, 217.59) = 76.60$, $p < .001$, $\eta_p^2 = 0.33$ (Greenhouse-Geisser corrected). The planned comparisons revealed that participants earned the most money in the dictator game ($M = 66.43\%$ of the total resources; $SD = 19.03$, 95% CI [63.46, 69.40]). Specifically, the amount earned in the dictator game was significantly more than the amount earned in the delta game ($M = 45.20\%$ of the total resources; $SD = 6.67$, 95% CI [44.16, 46.24]), $F(1, 156) = 87.92$, $p < .001$, $\eta_p^2 = 0.36$. Similarly, the earnings in the dictator game were also significantly higher than those in the ultimatum game ($M = 45.21\%$ of the total resources; $SD = 7.34$, 95% CI [44.07, 46.35]), $F(1, 156) = 76.60$, $p < .001$, $\eta_p^2 = 0.33$. Additionally, the earnings in the delta game were higher than those in the ultimatum game, $F(1, 156) = 16.72$, $p < .001$, $\eta_p^2 = 0.10$. Moreover, the main effect of Honesty-Humility (aggregated across all levels of power) was non-significant, $F(1, 156) = 3.52$, $b = -1.25$, 95% CI [−2.57, 0.07], $p = .063$, $\eta_p^2 = 0.02$.

More importantly, an interaction between power and Honesty-Humility was obtained, $F(1.40, 217.59) = 8.87$, $p = .001$, $\eta_p^2 = 0.05$ (Greenhouse-Geisser corrected). The planned contrasts revealed that the relation between Honesty-Humility and earnings in the dictator game was significantly different from the relation between Honesty-Humility and earnings in the delta game, $F(1, 156) = 12.79$, $p < .001$, $\eta_p^2 = 0.08$. The relations between Honesty-Humility and earnings in the delta game and between Honesty-Humility and earnings in the ultimatum game did not differ significantly, $F(1, 156) = 0.18$, $p = .675$, $\eta_p^2 = 0.00$. Finally, the relations between Honesty-Humility and earnings in the dictator game and ultimatum game were also significantly different, $F(1, 156) = 8.98$, $p = .003$, $\eta_p^2 = 0.05$. Fig. 3 shows the simple slopes analysis of this interaction effect and indicates that people low in Honesty-Humility earned about 10% more than those high in Honesty-Humility in the dictator game, whereas these people did not earn more than others in the delta game or in the ultimatum game. The simple slopes of the relation between Honesty-Humility and earnings in dictator game is the same as the one reported for the offers ($b = -4.78$, 95% CI [−7.70, −1.87], $p = .001$). The simple slopes of relation between Honesty-Humility and delta game was non-significant ($b = 0.31$, 95% CI [−0.74, 1.35], $p = .566$); and neither was the simple slopes of the relation between Honesty-Humility and earnings in the ultimatum game ($b = 0.72$, 95% CI [−1.26, 2.69], $p = .474$).

4.3. Discussion

In the Study 2 exploitative behavior of allocators was investigated by looking at the effect of Honesty-Humility in three economic games that differed in their power asymmetry (the delta game, ultimatum game, and dictator game). If an allocator had

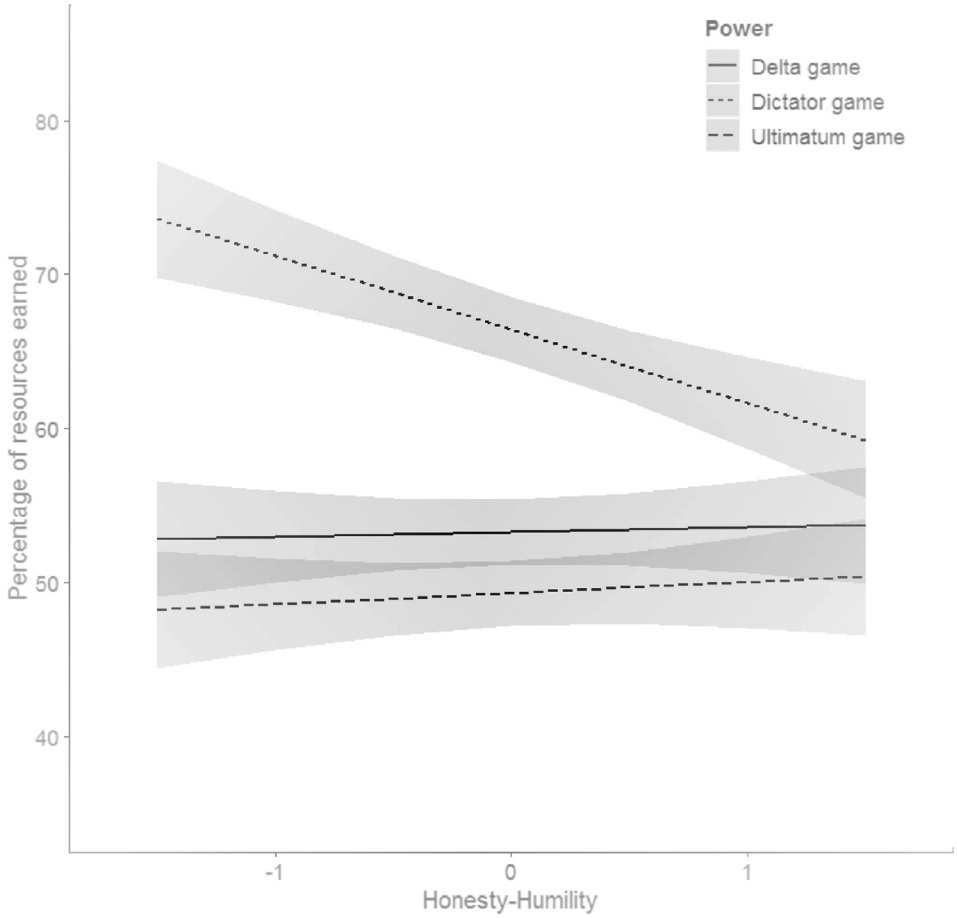

Fig. 3. Simple slopes analysis for interaction between Honesty-Humility (with values one standard deviation above and below the mean; and the 95% confidence interval) and power for the amount earned in Study 2 The y-axis limits are set at one standard deviation above the mean of the dictator game and at one standard deviation below the mean of the ultimatum game.

absolute power, individual differences of Honesty-Humility predicted to what extent someone exploited others for personal gain. Whereas if the power of allocators was intermediate or shared, there was no difference in exploitative behavior between people low and high in Honesty-Humility. Moreover, because individuals low in Honesty-Humility adequately inhibited their exploitative tendencies in the intermediate and shared power conditions (i.e., delta and ultimatum games), they obtained the best overall outcomes in the experiment.

5. General discussion

We hypothesized that personality differences in Honesty-Humility would moderate the effects of power asymmetry on exploitation by allocators. Following the power-exploitation affordances hypothesis, we expected high power to affect both *trait activation*—the extent to which an exploitation situation afforded the expression of individual differences in Honesty-Humility—and *outcome activation*—the extent to which the expression of Honesty-Humility predicts different outcomes. We conducted two studies whereby we used different games to simulate power asymmetries: the dictator game, delta game, and ultimatum game. The combined results of our studies suggest that trait and outcome activation of Honesty-Humility especially occur in high power situations and to lesser extent—or not at all—in intermediate and shared power situations.

In Studies 1 and 2 we found that Honesty-Humility was negatively associated with exploitation when allocators had absolute power (dictator) but not when power was intermediate (delta) or shared (ultimatum). This finding supports the idea that exploitation situations afford the expression of Honesty-Humility when there are no constraints in place (e.g., countervailing powers, checks, and balances) to inhibit this expression (De Vries et al., 2016; Tett & Burnett, 2003). Power likely frees individuals from such constraints and thus a situation of absolute power may be considered a weak situation (Galinsky et al., 2008) because of the absence of potential punishment or retaliation. However, our finding does not support the idea of an 'intermediate' interaction effect in the intermediate power condition and also contrasts with the prediction from the TASS model that in intermediate power situations the greatest difference between low and high Honesty-Humility would be found (Marshall & Brown, 2006).

In Study 2 we conducted a fully incentivized online multiplayer interaction experiment to replicate the first study and also consider the impact on the earnings of the allocators. We found that allocators low in Honesty-Humility earned the most money during the games—a finding indicating that this group of individuals benefitted the most from having power. Importantly, this was only true in the dictator game where they had absolute power over others and not in the games where they had intermediate or shared power levels.

5.1. Comparing findings across studies

The findings of our studies also allow us to disentangle the contradicting findings of three earlier studies on the interaction

between power and personality differences in economic games. Recall that Bendahan et al. (2015) found only evidence for a main effect of power and that DeCelles et al. (2012) and Hilbig and Zettler (2009) found an interaction between power and individual dispositions (i.e., moral identity and Honesty-Humility respectively). Our results corroborate those of DeCelles et al. (2012) and Hilbig and Zettler (2009) but contradict those of Bendahan et al. (2015). Our findings are comparable to those of DeCelles et al. (2012) and Hilbig and Zettler (2009) in that power and Honesty-Humility interacted in predicting exploitative behavior. It is notable that we found similar results despite the fact that the external power manipulation used by DeCelles et al. (2012) has been criticized for not providing insight in real power asymmetry (e.g., Sturm & Antonakis, 2015). We only observed this interaction effect in the absolute power situations (i.e., in the dictator games); it was absent in the intermediate and shared power situations (i.e., in the delta and ultimatum games).

Our findings contrast with the results of Bendahan et al. (2015), who only found evidence for a main effect of power and not for an interaction effect between power and Honesty-Humility. A possible explanation for this contrast is in the component of power that was manipulated. Bendahan et al. (2015) only compared differences in *absolute* power by contrasting different versions of a dictator game. However, earlier research has demonstrated that power consists of both influence and autonomy (Lammers, Stoker, Rink, & Galinsky, 2016). Influence reflects to what extent one controls the resources of another individual, whereas autonomy reflects to what extent one is free from the influence of another person. Bendahan et al. (2015) compared differences in absolute power (i.e., the effects of adding more response options and increasing the number of people affected by the dictator's behavior) and thus seem to have manipulated influence while keeping autonomy constantly high. On the other hand, we contrasted the effects of absolute power with intermediate and shared power (i.e., the difference between the dictator game, the delta game, and the ultimatum game) which could be considered a manipulation of autonomy. Potentially, compared to differences in influence, differences in autonomy may be more closely aligned to variations in situational strength. We believe that our manipulation is more informative for understanding what having power does to a person because our manipulation of resource control more closely aligns with the definition of power: having asymmetric control over valued resources (Magee & Galinsky, 2008).

Moreover, our results suggest that the findings of Hilbig and Zettler (2009) may be mainly due to the manipulation of allocator power. Specifically, our pilot study indicated people perceived different levels of power for the dictator game and ultimatum game (and also the delta game). Furthermore, we improved upon the study of Hilbig and Zettler in several ways. First, we added the delta game and demonstrated that the interaction between Honesty-Humility and power arises in when an allocator has absolute power but not when the allocator has intermediate or shared power. Second, by using multiple instances of every game we were able to determine the reliability of each assessment of the behavior in each game. Third, Hilbig and Zettler (2009) used hypothetical games, however, we demonstrated that interactions between Honesty-Humility and power also arise in an incentivized multiplayer interaction experiment. Therefore, these findings cannot be attributed to demand effects or other response biases (cf. Benner, Kramer, & Levy, 2008). Fourth, we show that low Honesty-Humility has real consequences in terms of higher outcomes retained. This aligns with findings of Babiak, Neumann, and Hare (2010) that people high in psychopathy (e.g., low on Honesty-Humility, see De Vries, Ashton, & Lee, 2008; Lee & Ashton, 2014) have a higher proportionate representation in the boardroom of large firms than in the population at large.

5.2. Limitations of our studies

One of the limitations of our studies is that we did not assess people's familiarity with economic games. We know from previous research that such prior experience may influence people's decision-making strategies (Cooper & Dutcher, 2011). This concern applies particularly to the MTurk sample we used in Study 2 (Chandler, Mueller, & Paolacci, 2014). To assess this possibility we looked at how comparable individual's decisions in the games were to previous studies that used the same games. Our findings were quite consistent with meta-analytic findings showing that people offered on average around 30% of their endowment in the dictator game (Engel, 2011) and around 40% in the ultimatum game (Oosterbeek, Sloof, & Van De Kuilen, 2004). Additionally, our results are also comparable to a study done on participants without any experience with economic games (Zhao et al., 2017).

A second limitation of our studies is that we only examined how situational power affects exploitation in monetary decisions. Yet exploitation of others can also involve telling lies, denying promotions or excluding low power individuals from relevant information (Anderson & Brion, 2014; Köbis, Van Prooijen, Righetti, & Van Lange, 2016; Lasthuizen, Huberts, & Heres, 2011). Thus, it remains an open question whether our findings will generalize to a broader set of exploitative behaviors that organizations face when they have low Honesty-Humility people in powerful positions.

Finally, we compared the prediction from the STOA (De Vries et al., 2016) with that of the TASS model (Marshall & Brown, 2006) in a post-hoc manner (see footnote 2). It should be noted that the TASS-model was developed in the context of biological traits and it may not necessarily apply to traits like honesty or sincerity. Future research may want to test contrasting predictions from the STOA and TASS models in behavioral domains that are relevant to both models (e.g., emotionality/fearfulness). Second, we did not use the TASS-model a priori to operationalize the intermediate activation situation for a trait. Future research might like to include more specific operationalizations of intermediate levels of power. We have no reason to believe that the results depend on other characteristics of the participants, materials, or context.

5.3. Directions for future research

In testing the power-exploitation affordances hypothesis in our studies, we did not address whether those low in Honesty-Humility individuals are more likely to seek out situations of absolute power. This is what the STOA model would predict (De Vries, 2018; De Vries et al., 2016). There is some evidence that individuals low in Honesty-Humility are more interested in obtaining a high status position (Lee et al., 2013). However, it is unclear whether they want to obtain these positions because they can exploit others or because these positions are associated with high status and rewards. If individuals low in Honesty-Humility are indeed more likely to apply for—and end up in—leadership positions with absolute power this may exacerbate power abuse risks in organizations (e.g., Padilla et al., 2007; Williams, 2014).

Future research might also like to address how power differentially affects people high versus low in Honesty-Humility. A potential mediating factor may be the feelings of social distance among those who are in positions of power. Specifically, social distance theory predicts that situational power corrupts because powerful individuals feel more distant from others (Magee & Smith, 2013). Those low in Honesty-Humility perhaps feel more socially distant, because they consider themselves worthier and entitled to greater rewards (these self-evaluations are captured in the modesty facet of Honesty-Humility). A different explanation is that people low in Honesty-Humility may think they can get away more easily with

exploitation when in a position of relative immunity—the so-called Bathesheba syndrome (Ludwig & Longenecker, 1993). We anticipate that the second explanation accounts for the current findings, because our design directly contrasted whether someone had immunity—by having absolute power—or not. Furthermore, this finding aligns with earlier research that individuals low in Honesty-Humility curb their exploitation in a public goods game when others can punish them, yet free-ride if they have impunity (Hilbig, Zettler, & Heydasch, 2012). Future research might like to contrast both potential mediators to determine why power influences people with low Honesty-Humility.

5.4. Conclusion

To conclude, our studies show that individuals who are dispositionally low in Honesty-Humility are more likely to exploit situations of high power by making decisions that benefit themselves at the cost of potential gains of others. Our findings indicate that these exploitative tendencies result in better pay-offs for them when no appropriate checks and balances are in place to curtail exploitative tendencies. Our findings highlight the risk of individuals low on Honesty-Humility getting into leadership positions with high levels of power, because they may abuse these positions for personal or nepotistic gains. If sharing—or restricting—power is not an option, it may be crucial to select the right personnel for executive level functions (Hogan & Kaiser, 2005). We call therefore for more rigorous personality assessment procedures to curb potential exploitation by people in influential positions. Furthermore, our results highlight the importance of holding powerful individuals accountable for their actions by avoiding structures in which someone can gain almost absolute power over others (cf. the Harvey Weinstein-case). That is, we echo the advice (Pearce, Manz, & Sims, 2008) that to limit exploitation by leaders—especially those low in Honesty-Humility—it is essential to limit excessive power centralization.

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Appendix A. Supplementary material

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